PA168V MGCP FXS **Gateway**

User Manual

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➢ PA168V MGCP FXS Gateway Appearance

- **Front view** (Refer to Fig1.1) :

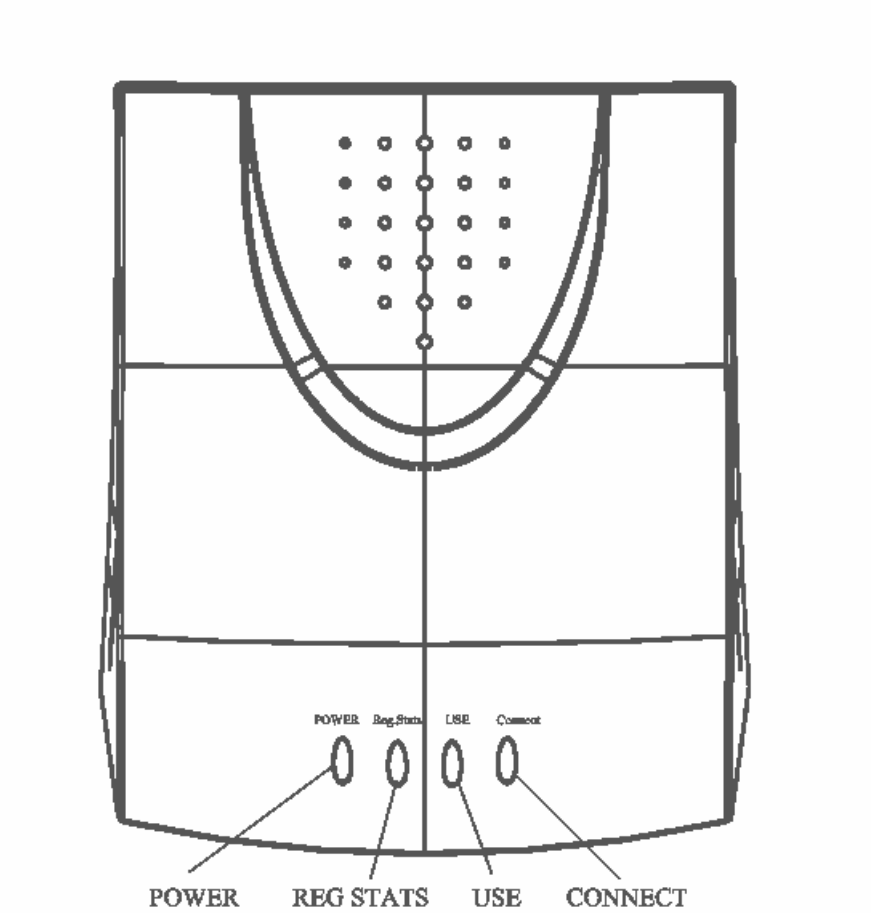


Fig 1.1 PA168V MGCP FXS Gateway Front View

- **Back view** (Refer to Fig1.2) :

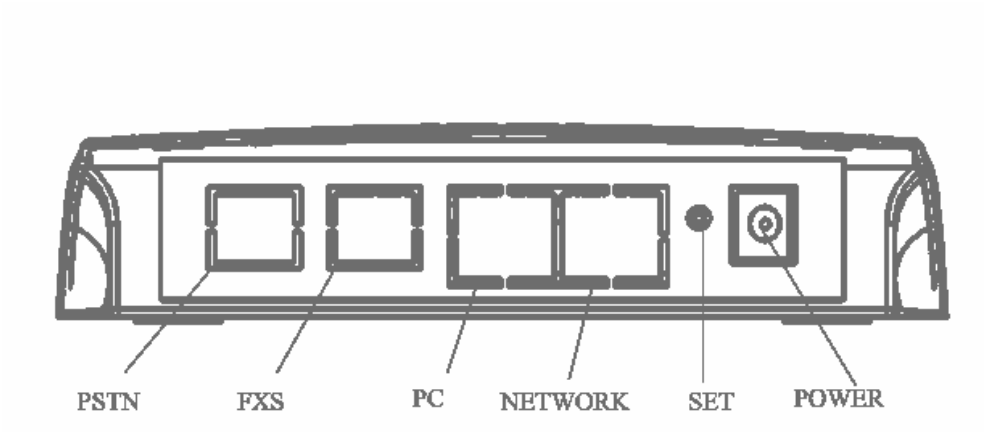


Fig 1.2 PA168V MGCP FXS Gateway Back Front View

➢ Indicators and the setting key functions：

Indicators	Functions	Indicators	Functions
Power	Light's on when power on.	Reg.Stats	Light's off when registered, flashing when register failed.
USE	Light's on when picking up, off when hung up.	Connect	Light's flashing when call is connected, off when call is disconnected.
Button	Functions		
SET	1. With handset hung, press this key to indicate local IP address with voice prompt. Please refer to the details in the "Use ordinary telephone keyboard pre-setting" chapter.		
	2. Set the connect network type, please refer to the details in the "Use ordinary telephone keyboard pre-setting" chapter.		
	3. When IP type using the "static IP", use the required static IP address.		
	4. To set PA168V in "setup mode", please refer to the "Use ordinary telephone keyboard pre-setting" chapter.		

➢ PA168V MGCP FXS Gateway features：

➢ Hardware

- Main chip—PA1688LQ 50MHz
- Data Memory—2MB SDRAM
- Program Memory—2 MB Flash memory

- FXS Jack— 1 XRJ-11
- POTS Jack— 1XRJ11 PSTN telephone line jack
- Ethernet Jack—2X10/100M auto-negotiate interface
- AC/DC adapter—Input AC100-- 220V，Output 9V DC, 1A

➢ **Software**

- DHCP support for automatic assigning IP addresses
- PPPoE support for ADSL or Cable modem
- Set up by HTTP web browser or Telnet
- Upgraded and Configured by FTP and HTTP(TFTP optional)
- Support major G.7XX ;GSM610 audio codec
- VAD(Voice active detect)
- CNG (Comfort noise generation)
- Dynamic voice jitter buffer
- G.167/165 compliant 16ms acoustics echo cancellation
- Tone generation and Local DTMF re-generation according with ITU-T
- E.164 dial plan and customized dial rules
- 100 entries for speed dial
- Voice prompt local IP address
- Support adjustable user password and super password

➢ **Standard and Protocol**

PA168V MGCP FXS gateway supports following standard and protocol:

- IEEE 802.3 /802.3 u 10 Base T / 100Base TX
- Major G.7XX; GSM610 audio codec
- MGCP1.0 (RFC2705)
- TCP/IP: Internet transfer and control protocol
- RTP: Real-time Transport Protocol
- RTCP：Real-time Control Protocol
- VAD/CNG save bandwidth
- DHCP：Dynamic Host Configuration Protocol
- PPPoE：PPP Protocol over Ethernet
- DNS：Domain Name Server
- Telnet：Internet's remote login protocol
- FTP：File Transfer protocol
- TFTP：File Transfer protocol (optional)
- HTTP：Hyper Text Transfer protocol

➢ **Operating requirements:**

- Operation temperature: 0 to 50° C (32° to 122° F)
- Storage temperature: -30° to 65° C (-22° to 149° F)
- Humidity: 10 to 90% no dew

➢ **Electric requirements:**

- Voltage: 9V DC

- Power: 9W (max.)
- Power adapter: AC/DC input 100-230V，Output 9V 1A
- Network interface:2X RJ-45 Ethernet Connectors
- FXS jack：1XRJ-11 telephone jack
- POTS jack：1XRJ-11 PSTN telephone line jack

➢ **Size：**

153 x 124 x 27 mm (L x W x H)

➢ Installation:

PA168V MGCP FXS gateway adopts the standard RJ45 Ethernet connectors, which are put in use in cases that Ethernet Jack is used, such as those of users of LAN, Ethernet, ADSL or Cable Modem.

1．Connect to telephones: Connect the ordinary telephone to the PA168V FXS jack with a RJ11 connect cable.

2．Connect to PSTN: Connect the PSTN line to the PSTN jack of PA168V.

✎ Note: When power off, use ordinary telephones to make or receive a PSTN call to confirm PSTN line works well.

3．Link to the network: Plug one end of the RJ45 skips cable into the “NET WORK” marked RJ45 connector by of PA168V; Link the other end to the HUB or switch, or RJ45 connector of ADSL or Cable Modem.

4．Link to the PC：Plug one end of the RJ45 skips cable into the “PC” marked

RJ45 connector of PA168V ; Link the other end to the RJ45 connector of PC NIC.(optional)

5 . Power on: plug the power cord adapter into the Power Jack at the back of the PA168V. Then plug the other end of the power cord adapter into the appropriate wall outlet.

➢ Configuration:

Two ways of configuring the PA168V MGCP FXS gateway are available: web browser, Telnet commands.

➢ Preset the PA168V by Using ordinary telephone keyboard

Use the keyboard of an ordinary telephone which has been linked to the PA168V FXS, together with the “set” button, to make the presetting, or enable PA168V to enter into the “setup mode”. Details refer to the following table:

Keys	Functions
SET	1. With handset of the ordinary telephone lined to FXS port hung, press **SET** key to indicate local IP address with voice prompt.
1234+X+SET	2. With handset of the ordinary telephone lined to FXS port hung, push on the default password and then input numbers X + SET button, to set different the connect network type. X ranges from 0 to 3. 0—static IP;1—DHCP;2-PPPoE;3—modem

1234+SET	3. With handset of the ordinary telephone lined to FXS port hung, push on the default password and then press **SET** button, enable the gateway to enter into the “setup mode”.
1234+xxx.xxx.xxx.xxx +SET	4. With handset of the ordinary telephone lined to FXS port hung, push on the default password and input purpose static IP address xxx.xxxx.xxx.xxx，then press the **SET** button. Use the “ * ” key on the keyboard of an ordinary telephone to replace“ . ”

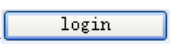
After the presetting as mentioned above, PA168V has acquired the related network parameter. You can make specific settings on the PC .

Note: If PA168V has been set in the “double modes” and “PSTN First”, please first tap down the hook or press the flash key, shift to the IP mode, then conduct the operation above.

- **Configuration with the standard WEB browser**

Double click icon to open the IE. Input the IP address of the PA168V into address bar (e.g.192.168.1.100)

, and then input password of the PA168V into the following page. Default ordinary password is 1234 and super password is 12345678. If the default password is invalid, please consult the supplier.

With Debug set 0[disable], please input super password; while Debug is not set as 0[disable], please input ordinary password. Then click 

button. The following configured page wills popup. Refer

to Fig 3.1 please.

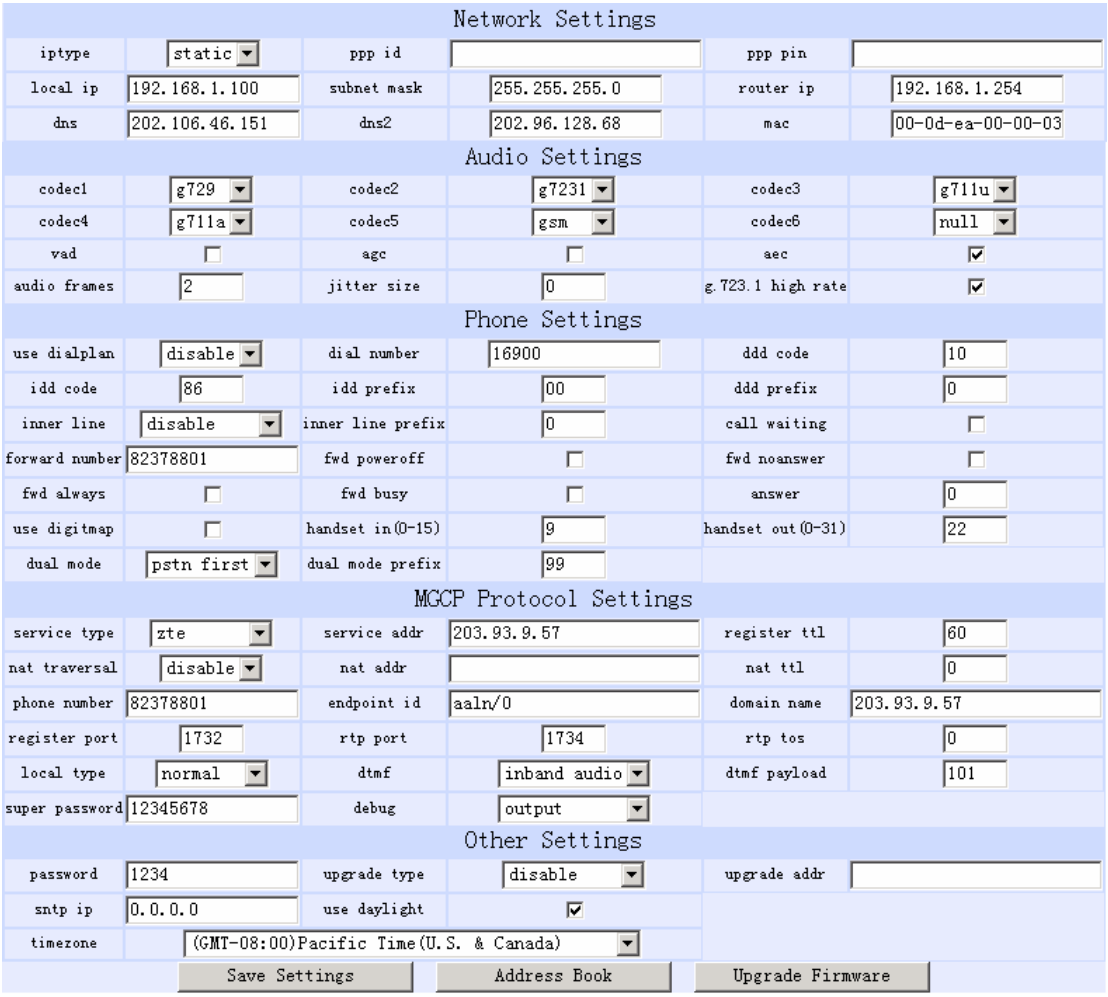


Fig 3.1 Http Setting

Network Setting：

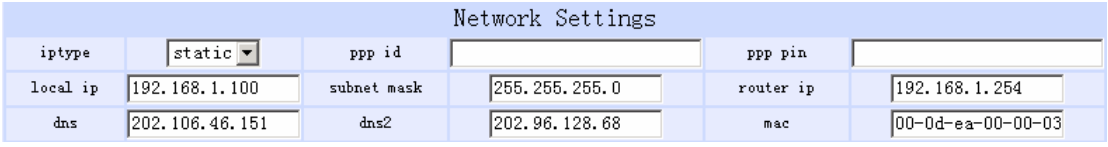


Fig 3.2 Network Setting

- **iptype**: Set how PA168V FXS Gateway gets relevant network parameters by selecting corresponding item from drop down list.

  - **static ip**: Select this item to authorize users to set IP address, subnet

mask, router IP address and dns IP of PA168V FXS gateway manually.

- **dhcp**: Select this item to enable DHCP mode, and it will assign the IP address and other net parameters automatically.

- **pppoe** : Those ADSL, Cable Modem and Ether net users who take the way of virtual dial-up please select this item for it is a protocol especially designed for them.

- **modem** : Users of PA168V FXS gateway attached with modem, please select this item. Then please fill user name and password of dial-up network into **ppp id** and **ppp pin** fields.

- **ppp id:** With **pppoe** selected in **iptype** drop down list, please enter the ADSL user name here; with **modem** selected in **iptype** drop down list, please enter the modem dial-up user name here. The length of the user name is limited within 40 bytes.

- **ppp pin:** With **pppoe** selected in **iptype** drop down list, please enter the ADSL password here; with **modem** selected in **iptype** drop down list, please enter the modem dial-up password here. The length of the password is limited within 24 bytes.

- **local ip:** With **static ip** selected in **iptype** drop down list, please enter IP address acquired from the administrator or ISP.

- **subnet mask:** With **static ip** selected in **iptype** drop down list, please enter subnet mask acquired from the administrator or ISP.

- **router ip:** With **static ip** selected in **iptype** drop down list, please enter the default Gateway IP address on which the PA168V locates in the network.

- **dns:** With **static ip** selected in **iptype** drop down list, please enter the IP address of the main DNS server .

- **dns (spare):** With **static ip** selected in **iptype** drop down list, please enter IP address of backup DNS server here.

- **mac:** MAC address is the physical address supplied by the Ethernet NIC. Every PA168V FXS Gateway is preset while shipped from the factory with a unique algorism MAC address printed on the back of the base.

Audio settings:

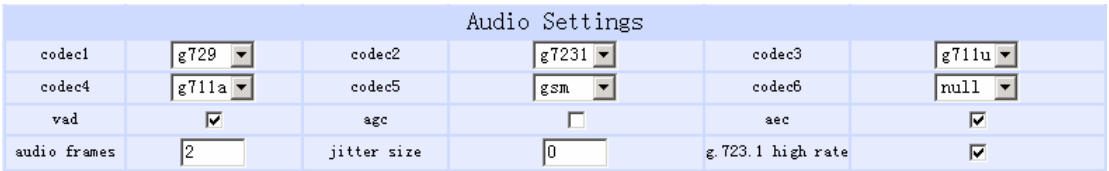


Fig 3.3Audio Setting

- **codec1:** Set the priority 1 of the audio compression algorithm. The options are **g729** , **g7231** , **g711u** , **g711a** and **gsm**.

- **codec2:** Set the priority 2 of the audio compression algorithm. The options are **g729** , **g7231** , **g711u** , **g711a** and **gsm**.

- **codec3:** Set the priority 3 of the audio compression algorithm. The options are **g729** , **g7231** , **g711u** , **g711a** and **gsm**.

- **codec4:** Set the priority 4 of the audio compression algorithm. The options are **g729** , **g7231** , **g711u** , **g711a** and **gsm**.

- **codec5:** Set the priority 5 of the audio compression algorithm. The options are **g729** , **g7231** , **g711u** , **g711a** and **gsm**.

- **codec6:** Set the priority 6 of the audio compression algorithm. The options are **g729** , **g7231** , **g711u** , **g711a** and **gsm**.

- **vad:** Enable/disable VAD (voice activity detection).

- **agc:** Enable/disable AGC.

- **aec:** Enable/disable VEC.

- **audio frame:** Set audio frames in RTP package. Minimum is 1 and maximum is 8.
- **jitter size :** Set buffer size of RTP package. The value range is 0-32.
- **g.723.1 high rate:** enable/disable g.723.1 high rate. G.723.1 high rate is 6.3kbps, low rate is 5.3kbps.

Gateway Setting：

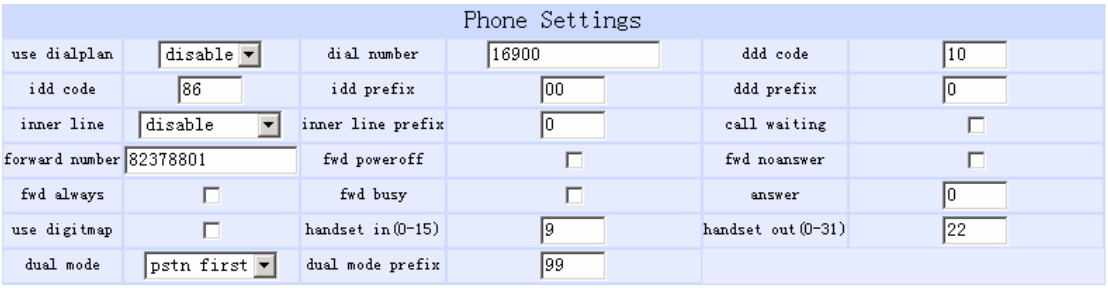


Fig 3.4 Gateway Setting

- **handset in:** Set the volume of handset input.
- **handset out:** Set the volume of handset output.
- **Dual mode:** Set this item to enable or disable the PSTN line.
  - **Disable:** This item selected Disable PSTN line.
  - **PSTN First：** This item selected, PA168V FXS gateway will choose PSTN calling first.
  - **IP First：** This item selected, PA168V FXS gateway will choose IP calling first.
- **dual modes prefix:** When IP first is set in the dual modes setting, setting switches to PSTN prefix such as 9.

Protocol Setting：

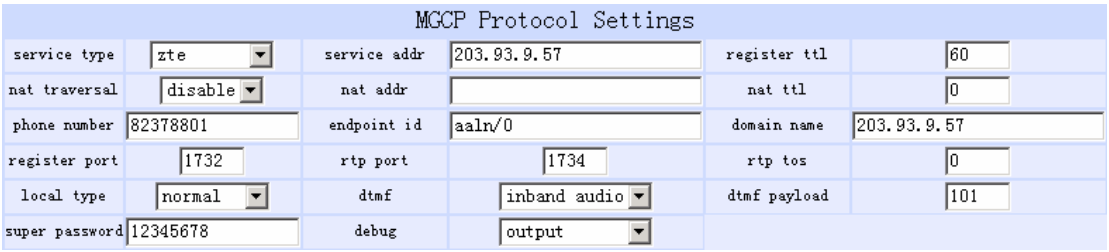


Fig 3.5 Protocol Setting

- **service type**: This option is used to accommodate the miscellaneous requirements of the system providers.

  - **Common:** no special requirements
  - **Huawei:** Use Huawei's system
  - **ZTE:** Use ZTE's system
  - **harbour:** Use Harbour's system
  - **utstarcom:** Use UTstarcom's system
  - **uptech:** Use Uptech's system
  - **keimen:** Use Keimen's system

- **service addr**: Please put the URI (domain name/IP address : service port) of the Call Agent into "**service addr**". When the default service port 2727 is used, ": service port" can be omitted.

- **register ttl :** PA168V will send a keep-alive registration message to

CA(call agent) every "**register ttl**" seconds. The minimum value is 10, maximum value is 65535. Default is 60.

- **nat traversal:** When PA168V with private IP address need communicate with other PA168V in a different LAN or on Internet, please select an item from dropdown list.

  - **disable:** Select this item when the login CA(call agent) and PA168V in the same LAN, or the login CA(call agent) supports PA168V working behind the LAN.

  - **enable:** When CA(call agent) does not support PA168V working behind the LAN, please select this item to search public IP address of the NAT device. With this item selected, "**nat addr**" field will be activated. Besides, port mapping (port forwarding) needs to be properly set up on NAT device.

- **nat addr:** When "**nat traversal**" is set to "**enable**", please put the domain name of the servers (These web server helps to find out the public IP of the IP phone) into "**nat addr**", such as www.whatismyip.com.

- **nat ttl:** When IP phone sit behind a NAT device, it will send packets to server every "**nat ttl**" seconds to keep the port mapping on the NAT device alive. "**nat ttl**" is an integer between 10 and 65535 .default value is 20.

- **phone number:** The local phone number or username of PA168V, usually is allocated by system.

- **endpoint id**: Please enter local endpoint id (eg.,aaln/0) .

- **domain name:** Please enter domain name of endpoint id.

- **register port:** The default port number for MGCP protocol is 2427.

- **rtp port:** RTP port is the port transferring and receiving voice packets using UDP protocol. This is an even number between 1024 and 65535.

- **rtp tos:** Set the TOS field of the IP header of the RTP packets. The bigger this value is 0 , the higher priority the packet is 224.

- **local type:** This parameter refers to how PA168V authenticate itself to the CA(call agent). Please select an item from dropdown list.
  - **normal:** Default authenticate mode.
  - **cnc auth:** a special authenticate mode used CNC system only.

- **dtmf:** Set DTMF signal sending way by selecting **inband audio**,or **rfc 2833** from list box.

- **dtmf payload :** When DTMF select **rfc 2833**.This parameter can be used indicating type of RTP payload type. The value can be use integer 96-101.

- **super password:** Set the super password of PA168V gateway.(Default super password is 12345678).
- **debug:** Set the debug level of PA168V.
  - **disable:** Disable output the debug message by selecting this item.
  - **output:** Output the operation information to the window, such as register, input by selecting this item.
  - **output all:** Output all debug information and data in test window by selecting this item.
  - **remote debug:** Save the debug information in SDRAM of PA168V by selecting this item.
  - **no check:** Disable checking firmware tags when upgrading. This is not suggested, because it will increase the risk of upgrading the wrong firmware into PA168V.

Other settings：

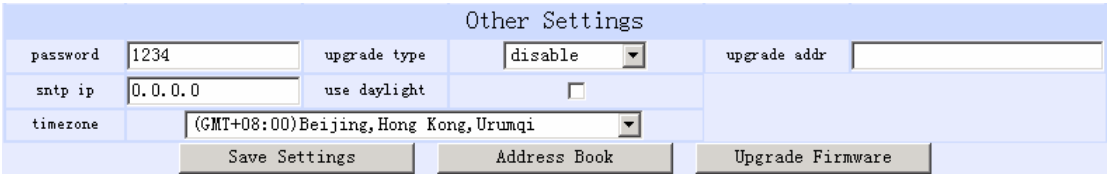


Fig 3.6 Other Setting

- **password:** Set the ordinary password of PA168V. (Default is 1234).
- **upgradetype:** Set the auto-upgrade type of the PA168V FXS gateway.
  - **disable :** Disable auto-upgrade .

- **all:** pa168V will find matching firmware binary file and configuration file of the hardware type only at the FTP server specify by **upgradeaddr** item .
- **mac:** pa168V will find matching firmware binary file and configuration file of the MAC address only at the FTP server specify by **upgradeaddr** item .
- **ppp id:** pa168V will find matching firmware binary file and configuration file of the ppp id only at the FTP server specify by **upgradeaddr** item .
- **account:** pa168V will find matching firmware binary file and configuration file of the account only at the FTP server specify by **upgradeaddr** item .
- **phonenumber**: pa168V will find matching firmware binary file and configuration file of the phone number only at the FTP server specify by **upgradeaddr** item .

- **upgrade addr:** Put IP address or domain name obtained by ISP of FTP server supplying upgrade program into this field.

- **nts ip:** Fill IP address of time server here. When network without Internet, Fill special address IP 255.255.255.255 here.

- **use daylight:** Enable/disable daylight.

- **timezone:** Select correct time zone in list box.

When debug set as 0[disable], if input ordinary password (default one is 1234), then following page will pop up after clicking login. And only those parameters can be modified.

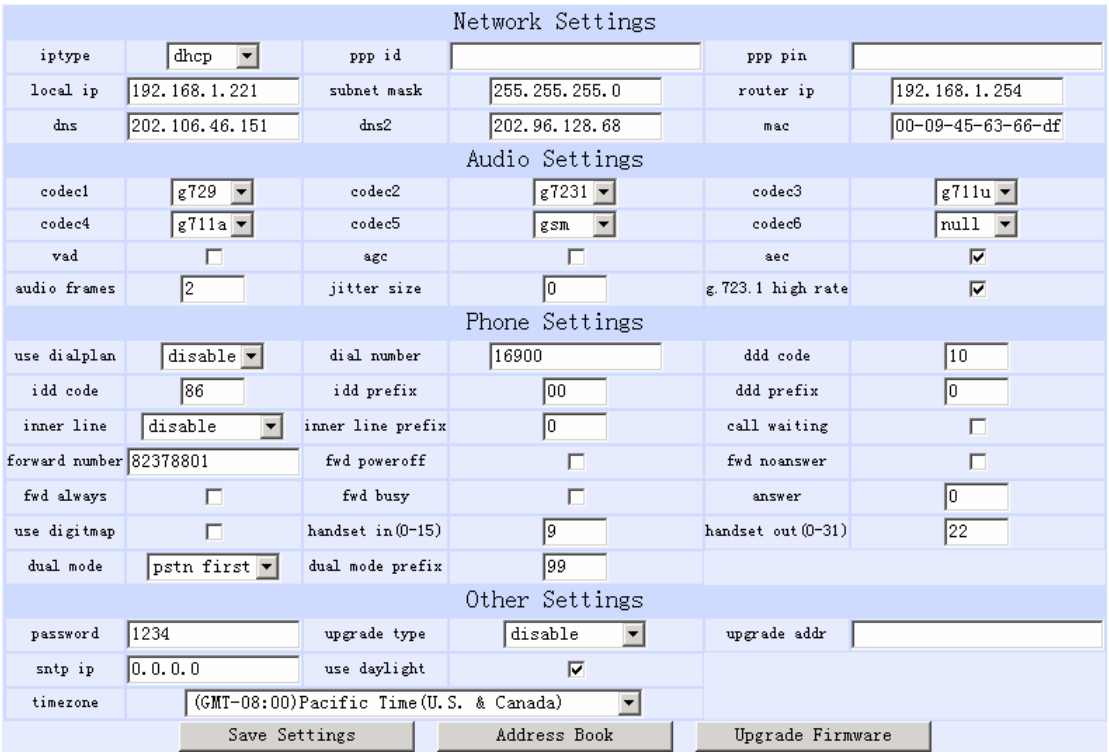


Fig 3.7 Setting Page using ordinary password with Debug set as 0 [disable]

- **Update:** Click this button to save the configuration and PA168V will reboot. Once the phone reboots successfully, the new configuration is effective.

✎**Note** After entering set page, if **Update** button is not clicked within 10 minutes, then when you click it again, the index page asking for pin will pop up again. Then please input the password again to enter the set page and then click **Update** button to confirm the modification.

Phone Book: Click this button to open the speed dial settings page. Please refer to Fig 3.7. In this page, you can set and save the speed dial number by typing the name into the **Name** field and then entering the corresponding number following the name. For example, input Jack in Name field following 001, and then input 5989426454 into Phone number field. Then Jack's number 5989426454 is saved in phone book. Then please click **Save/Back** button. In normal state, you can use speed dial to call numbers saved in phone book.

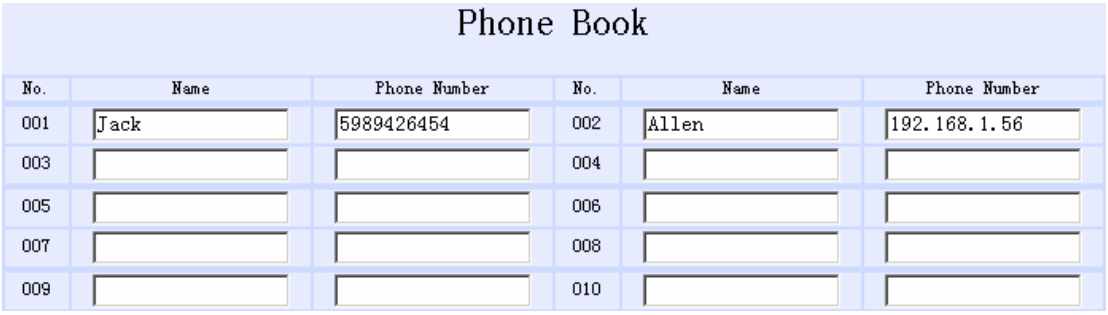


Fig 3.8 Phone Book Illustration

Upgrade Program: Click this button to update the program of the PA168V.

Update Digitmap: Click this button to update the digitmap of the PA168V.

- **Telnet Configuration**

  - On the PC choose **Start>Run**, and then type **telnet 192.168.1.100** into **Run** field in popuping Run dialog. Or input **telnet 192.168.1.100** in the DOS window. Then the following information will be display.

```
PA168X V1.42 settings
Password :
```

Then please type password. With debug is set as 0[disable], if type ordinary password (default one is 1234), after Retun, you will see：

```
Password : ****
P:\>
```

If you type super password, then you will see:

```
Password : ********
P:\>
```

Above information indicates that PA168V FXS gateway is under setting mode, and then you can set the PA168V by using the telnet commands.

- **PA168V Telnet Commands Explanation**

PA168V Telnet Commands

Command	Function
?	Supply command name and parameters
get	Display basic parameters of the PA168V FXS gateway
set	Set parameters of the PA168V FXS gateway
store	Save current settings to designated position
load	Load designated settings to current position
exit	Exit from the setting mode without saving the configuration
write	Exit with saving all configurations and restart PA168V
ping	Ping other net parameter

ftp The PA168V connects to FTP server and then get the files

Detail description of PA168V Telnet commands

Command ?

Syntax description: No optional parameter

Usage: Type command name and parameters following P:\> . Be used as the keyword to supply keyword and parameters of the relevant commands.

Relevant usage: None

Detailed description:

? List help of all commands

For example:

```
P:\>?
set
get                 list settings
store x             store current to xth settings
load x              load xth settings to current
exit
write               save settings
```

Command get

Syntax description: No optional parameter of keywords

Usage: Display basic parameters of the PA168V FXS gateway

Relevant usage: None

Detailed description:

get Display basic running parameters of the PA168V FXS gateway. Input ordinary password without debug being set as 0[disable], or input super password with debug set as 0[disable], then following parameters of PA168V FXS gateway will be displayed:

```
PA168X V1.42 settings
Password: ********
P:\>get
***************Network Settings***************
iptype 0[static]
ip 192.168.1.100          subnetmask 255.255.255.0    router 192.168.1.254
dns 202.106.196.152       dns2 202.106.196.115        mac 00-09-45-65-a3-e6
***************Audio Settings***************
codec1 0[g729]            codec2 1[g7231]             codec3 2[g711u]
codec4 3[g711a]           codec5 4[gsm]               codec6 6[null]
vad 1[enable]             agc 0[disable]              aec 1[enable]
audioframes 2             jittersize 0                6.3k 1[enable]
***************Phone Settings***************
dialplan 1[enable]        dddcode 10
iddcode 86                iddprefix 00                dddprefix 0
innerline 1[enable]       innerlineprefix 0           callwaiting 1[enable]
fwdnumber 82378009        fwdpoweroff 1[enable]
fwdalways 1[enable]       fwdbusy 1[enable]           fwdnoanswer   1[enable]
answer 30
digitmap 1[enable]        handsetin 5                 handsetout 20
ringtype 0[dtmf]          speakerout 20               speakerin 1
***************Protocol Settings***************
servicetype 0[`common ]
caaddr 203.93.9.57        registerttl 60
nattraversal 1[enable]
nataddr [empty]           natttl 0
phonenumber 82378801      endpointid [empty]          domain [empty]
registerport 1732         rtpport 1734                rtptos 0
dtmfpayload 101           localtype 0[normal]         dtmf 0[inband audio]
***************Other Settings***************
superpassword 12345678    debug 1[output]
password 1234             upgradetype 0[disable]
upgradeaddr [empty]
sntpip 0.0.0.0            daylight 0[disable]
timezone 55[(GMT+08:00)Beijing,Hong Kong,Urumqi]
```

Input ordinary password with debug set as 0[disable], following information will be seen:

```
PA168X V1.42 settings
Password:****
P:\>get
**************Network Settings***************
iptype 0[static]
ip 192.168.1.100     subnetmask 255.255.255.0       router 192.168.1.254
dns 202.106.196.152     dns2 202.106.196.115     mac 00-0d-ea-00-00-03
**************Audio Settings***************
codec1 0[g729]              codec2 1[g7231]                  codec3 2[g711u]
codec4 3[g711a]             codec5 4[gsm]                    codec6 6[null]
vad 1[enable]               agc 0[disable]                   aec 1[enable]
audioframes 2               jittersize 0                     6.3k 1[enable]
**************Phone Settings***************
dialplan 1[enable]          dddcode 10
iddcode 86                  iddprefix 00                     dddprefix 0
innerline 1[enable]         innerlineprefix 0                callwaiting 1[enable]
fwdnumber 82378009          fwdpoweroff 1[enable]
fwdalways  1[enable]        fwdbusy  1[enable]               fwdnoanswer
1[enable]answer 30
digitmap 1[enable]          handsetin 5                      handsetout 20
ringtype 0[dtmf]            speakerout 20                    speakerin 1
**************Other Settings***************
password 1234               upgradetype 0[disable]
upgradeaddr [empty]
sntpip 0.0.0.0              daylight 0[disable]
timezone 55[(GMT+08:00)Beijing,Hong Kong,Urumqi]
```

Command set

Syntax description: set keywords value

Usage: Used to configure password and other running parameters of PA168V FXS gateway.

Detailed description:

set iptype X

Set how PA168V FXS gateway gets relevant network parameters. X ranged from 0 through 3. 0: authorize users set IP address, subnet mask and router IP address of PA168V manually; 1: use DHCP mode. With this system, 2: use PPPoE mode. Those ADSL and Cable Modem users please select this item. 3: use modem mode. Those who use PA168V with modem please set the value as 3.

set pppid XXX

With **iptype** set as **2**, use this command to set user name of PPPoE; with **iptype** set as **3**, use this command to set user name of dial-up network.

set ppppin XXX

With **iptype** set as **2**, use this command to set user name of PPPoE; with **iptype** set as **3**, use this command to set user name of dial-up network.

set ip XXX.XXX.XXX.XXX

With **iptype** set as **0**, use this command to set IP address of PA168V FXS gateway.

set subnetmask XXX.XXX.XXX.XXX

With **iptype** set as **0**, use this command to set subnet mask of

PA168V FXS gateway.

set router XXX.XXX.XXX.XXX

With **iptype** set as **0**, use this command to set router IP of network.

set dns XXX.XXX.XXX.XXX

With **iptype** set as **0**, use this command to set IP address of DNS server.

set dns2 XXX.XXX.XXX.XXX

With **iptype** set as **0**, use this command to set IP of backup DNS server.

set mac XX-XX-XX-XX-XX-XX

Set MAC address of the PA168V FXS gateway. Parameter xx-xx-xx-xx-xx-xx must be an HEX number.

---

set codec1 X

Set the priority 1of the audio compression algorithm. X is range from 0 through 4: 0: g729; 1:g7231; 2: g711u; 3: g711a; 4: gsm.

set codec2 X

Set the priority 2 of the audio compression algorithm. X is range from 0 through 4: 0: g729; 1:g7231; 2: g711u; 3: g711a; 4: gsm.

set codec3 X

Set the priority 3 of the audio compression algorithm. X is range from 0 through 4: 0: g729; 1:g7231; 2: g711u; 3: g711a; 4: gsm.

set codec4 X

Set the priority 4 of the audio compression algorithm. X is range from 0 through 4: 0: g729; 1:g7231; 2: g711u; 3: g711a; 4: gsm.

set codec5 X

Set the priority 5 of the audio compression algorithm. X is range from 0 through 4: 0: g729; 1:g7231; 2: g711u; 3: g711a; 4: gsm.

set codec6 X

Set the priority 6 of the audio compression algorithm. X is range from 0 through 4: 0: g729; 1:g7231; 2: g711u; 3: g711a; 4: gsm.

set vad X

Enable/disable VAD. X is ranged from 0 through 1: 0: disable VAD; 1: enable VAD.

set agc X

Enable/disable AGC. X is ranged from 0 through 1: 0: disable AGC; 1: enable AGC.

set aec X

Enable/disable AEC. X is ranged from 0 through 1: 0: disable AEC; 1: disable AEC.

set audioframes X

Set audio frames in RTP package. X is Arabic numerals between 0 and 7.

set jittersize X

Set buffer size of RTP package. X is range from 0-32.

set 6.3k X

With G.7231 codec selected; set PA168V FXS gateway to use 6.3K rate or not. X is ranged from 0 through 1: 0: use 6.3K rate; 1: use 5.3K rate.

---

set handsetin X

Set initial volume of handset. X is ranged from 0 through 15.

set handsetout X

Set initial volume of handout. X is ranged from 0 through 31.

set dualmode X

Set to enable or disable the PSTN line. X is ranged from 0 through 2. 0: do not use PSTN line; 1: use PSTN line first. 1: use IP side call first.

set dual modes prefix XX

When IP first is set in the dual modes setting, setting switches to PSTN prefix ; XX is ranged from 0 through 99.

---

set service type X

Enable/disable the repaid and service system .choose the repaid server provider. Parameter x ranged from 0 through 6:

0: common: disable repaid card;

1: use huawei's system;

2: use ZTE's system;

3: use harbour's system;

4: use utstarcom's system;

5: use uptech system;

6: use kaiman system;

set caaddr XXXX

Set IP address or domain name of Call Agent.

set registerttl X

Set register TTL. X is range from 10 through 65535 Sec. default value is 60 Sec.

set nattraversal X

X ranged from 0 through 1: 0: do not use NAT traversal. When the login CA(call agent) and PA168V in the same LAN, or the login CA(call agent) supports PA168V working behind the LAN; 1: Use NAT traversal. When the login CA(call agent) does not supports PA168V gateway working behind the LAN, With this item selected, please make port mapping on NAT device.

set nataddr XXXXX

When "**nattraversal**" is set to "**1**";set IP address of NAT device wan

port or URI of free assistant service (Such as www.showmyip.com etc.) in Internet.

NOTE The free service list of Internet：www.ip-calculator.com; www.ipchicken.com; www.ipchicken.com;www.showmyip.com;www.whatismyip.com; www.myipaddress.com; www.whatismyipaddress.com; ip.sbbs.net; www.whatismyipaddress.net;checkip.dyndns.org

set natttl XX

Set NAT TTL XX is an integer between 10 and 65535 sec. default value is 20 sec.

set phonenumber XXXXXXXX

Set a local ID of PA168V gateway. Value xxxxx must be an Arabic numeral and no longer than 16 characters.

set endpointid XXXXXX

Set the endpoint id; Value xxxxxx must be an Arabic numeral and no longer than 32 characters.

set domain XXXXXXXXXX

Set the domain name; Value xxxxxx must be an Arabic numeral and no longer than 32 characters.

set registerport XXXX

Set register port. XXXX is range from 1024 through 65535. Default value is 2427.

set rtpport XXXX

RTP port is the port transferring and receiving voice flow using

UDP protocol. XXXX is range from 1024 through 65535.

set rtptos X

Set TOS segment of IP head package in RTP digital follow. X is range from 0 through 224.

set dtmf payload X

When dtmf X select 1(rfc 2833).This parameter can be used indicating type of RTP payload type. The value can be use integer 96-101.

set localtype X

X is set 0 to 1:0: normal; 1: use CNC special authentication system.

set dtmf X

Set DTMF relay type. X is ranged form 0 through 1: 0:inband audio ; 1: rfc 2833.

---

set password XXXX

Set password of the PA168V FXS gateway. XXX must be ASCII characters.

set superpassword XXXX

Set super password of the PA168V FXS gateway. XXX must be ASCII characters.

set debug X

Set open debugging message output grade for special tool. X is ranged from 0 through 5: 0: close debugging output; 1: output the operation information to the window; 2: output all the bug information and data in test window; 3: save the bug information into SDRAM; 4: disable checks the mark.

set upgradetype X

Set auto-upgrade matching type , X is range from 0 through 5 , 0------disable ; 1------all ; 2------ mac ; 3------ppp id; 4------ account; 5------ phone number。

set upgradeaddr XXX.XXX.XXX.XXX

Set IP address or domain name of FTP server supplying upgraded program of PA168V gateway.

set ntsip XXX.XXX.XXX.XXX

Set IP address of time server.

set daylight X

Set use daylight or not. X ranged from 0 through 1: 0: do not use daylight; 1: use daylight.

set timezone XX

Set time zone.

Command store

Syntax description: no keyword. Parameter ranged from 0 through 4.

Usage: Save the current settings to the designated position.

Relevant Usage: store 1

Command load

Syntax description: no keyword. Parameter ranged from 0 through 4.

Usage: Load the designated settings to the current position.

Relevant Usage: load 1

Command exit

Syntax description: no keyword and parameter

Usage: Exit from Telnet command window without saving the configuration.

Relevant usage: None

Command write

Syntax description: No keyword and parameter

Usage: Save the configuration and restart the PA168V FXS gateway.

Command ping

Syntax description: **ping IP address**

Usage: ping IP address of other NAT device

Relevant usage: In telnet window, input ping xx.xxx.xx.xx（an IP address） and return, then the result will be displayed. If the address is effective, “ping OK” will be seen; If the address is ineffective, nothing will be seen. Fox example:

```
P:\>ping 203.93.9.57
P:\>
ping OK
P:\>ping 27.56.120.56
P:\>
```

Note Usually, the echo time of ping command is no more than 1 second. So if the result is not displayed in 5 seconds, ping command is fail.

ftp command

Syntax description: **ftp value**

Usage: the system connects to the FTP server auto to get the corresponding file and deal with it.

Relevant usage: ftp X

X ranged from 0 through 2:

X-0: Connect to FTP Server to get the file of updating program and save it to the SDRAM of PA168V. Then the file can be read by PalmTool. This operation aims at testing.

X-1: Connect to FTP Server to get the file of updating program and update program Flash. This operation aims at updating program.

X-2: Connect to FTP Server to get the file of updating dial rules and update program Flash. This operation aims at updating dial rule.

Note When you use ftp 0 and ftp 1 commands, if the file get from FTP server is too large or the net speed is too slow, then the process will not be seen in telnet window. Please be patient. Using ftp command in telnet to get file spends almost same minutes as getting file using PA168V. So if nothing is displayed after too long time, it means that ftp is fail.

Note All the Telnet commands of PA168V FXS gateway should be written in low case and the password is case sensitive.

➢ Operation of PA168V FXS gateway

➢ Receiving a call:

When a call incomeing, whether from IP net work or PSTN, all the ordinary phones linked with the FXS jacks of PA168V FXS gateway will ring to remind you. You can receive the call by picking up the phone or using the hand free set.

➢ When the dual mode of the PA168V is disable

■ Make a call

- **Make a call using phone number：**

1．Use the handset to make the call: Picking up the handset of the ordinary phone, and after hearing the dial tone, dial your number to make a call.

2．Use the handfree to make the call: Press the handfree of the ordinary phone and after hearing the dial tone, dial your number to make a call.

3. Redial: When you want to redial, Pick up the handset or press the handfree, then after hearing the dial tone; Press the Redial key.

- **When the dual mode of the PA168V is set as PSTN first**

  - **Make a call with PSTN line**

    When PA168V is set as PSTN first and when you pick up the handset, the pone will be linked with the public telephone network. Use the same way as the dialing of a PSTN call.

  - **Make a call with IP network**

    Tap the hook or press the “Flash” key on an ordinary phone, and switch PA168V to the network from PSTN. After hearing the dial tone, you can make a call in different ways. Please refer to the part of “**make a call**” in “**When the dual mode of the PA168V is disable**”.

- **When the dual mode of the PA168V is set as IP first**

  - **Make a call with IP network**

    When PA168V is set as IP first, and while you pick up the handset, it will be linked to the IP network. After hearing the dial tone, you can make a call in different ways. Please refer to the part of “**make a call**” in “**When the dual mode of the PA168V is disable**”.

  - **Make a call with PSTN line**

    Dial the prefix number of the preseting “**Dual mode prefix**”, PA168V will be switched to PSTN. After hearing the dial tone, dial the phone number then make a call.

- **Emergency call**

  When PA168V is power cut or failed, the ordinary phone on the PA168V

FXS jacks will be linked directly to the PSTN to make a “life line”, for the purpose of emergency call.

➢ Centralize Upgrade and configuration of PA168V FXS gateway

➢ Prepare firmware and configuration file

Please ask the latest version of upgrade program from the agents or suppliers. Or visit http:// www.aredfox.com download.

➢ Manual upgrading and configuration

■ Use FTP server

FTP server can be supplied by the service provider as well as setup by the users in LAN. Please set the IP address or domain name of FTP server to PA168V FXS gateway relevant field.

As to the related operations of centralize upgrade and configuration, please refer to the following table:

step	operation	Operation illustration
1	1234+SET	Pick up the handset, enter the default password, then press“SET” button, and the PA158V will enter the “setup mode”.
2	8+SET	In the “setup mode” , PA168V will be linked to FTP server to get the firmware and upgrade.
3	5+SET	In the “setup mode” , PA168V will be linked to FTP server to get the configuration file and upgrade.
4	6+SET	In the “setup mode” , PA168V will be linked to FTP server to get the

		dialplan rule file and upgrade.

Note: Please do NOT change the name of the upgrading files, or the upgrading will fail.

- **Use Telnet command to upgrade**

Use telnet connect to PA168V. Please use the supper password to log in, and then start the upgrading with **FTP X** command. X ranges from 0 to 2:

X-0: Link to the FTP Server to get the firmware, and save the files to the sadram of the PA168V. The files can be read with Palmtool and are used for debug.

x-1: Link to the FTP Server to get the firmware，and then upgrade.

x-2 Link to the FTP Server to get the dialplan rules file，and then upgrade.

- **Use HTTP**

Use Web brownser to visit PA168V FXS gateway. Please use super password to log in. Click Upgrade Firmware , there will pop up a corresponding page. As to the details please refer to the part of "**Upgrading Program, Update Digitmap**" in the chapter of "**Configured with the standard web browser"**

- **Automatic upgrading**

The auto-upgrading is used only with the FTP server. It is mostly used by the service provider or manufactory.

When the auto-upgrading is done and PA168V FXS power-on, the PA168V will to link with the FTP server automatically to get the firmware; configuration

and dial rules files.

According different purposes, the following different matching ways, together with different the firmware; configuration and dial rules files, can be adopted to configure and updateing.

- **Upgrade the matching type of hardware**

Use this way to match the type of hardware. When the type of the hardware complies with the requirements of t the firmware; configuration and dial rules files, it will be upgraded or configured automatically.

When the upgrading is done, the type of hardware will keep unchanged, while other parameters will be upgraded as in the new configuration files.

- **Upgrade the matching MAC address**

Use this way to match MAC address. When MAC address of PA168V complies with the requirements of t the firmware; configuration and dial rules files, it will be upgraded or configured automatically.

When the upgrading is done, MAC address of PA168V will keep unchanged, while other parameters will be upgraded as in the new configuration files.

- **Upgrade the matching PPP ID**

Use this way to match PPPID. When PPPID of PA168V complies with the requirements of t the firmware; configuration and dial rules files, it will be upgraded or configured automatically.

When the upgrading is done, PPPID of PA168V will keep unchanged, while

other parameters will be upgraded as in the new configuration files.

- **Upgrade the matching Account**

Use this way to match the account. When the account of PA168V complies with the requirements of t the firmware; configuration and dial rules files, it will be upgraded or configured automatically.

When the upgrading is done, the account of PA168V will keep unchanged, while other parameters will be upgraded as in the new configuration files.

- **Upgrade the matching phone number**

Use this way to match the phone number. When the phone number of PA168V complies with the requirements of t the firmware; configuration and dial rules files, it will be upgraded or configured automatically.

When the upgrading is done, the phone number will keep unchanged, while other parameters will be upgraded as in the new configuration files.

- **Recover the factory setting**

If you want to recover the default parameters setting, please pick up the handset and input the ordinary password (default is 1234). Then press the SET button at the back end of PA168V, and PA168V will then enter into the setup mode. In the setup mood, after press # 5 * 5, PA168V will restart and the factory setting is recovered.

Reserves the right to make changes in technical and product specification without prior notice.

PA168V MGCP *FXS Gateway User Manual* (V1.42)

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